

# **isR series**

## **isR 10, isR 11, isR 20**

### User Manual

The information, technical data and dimensions contained in this print have been up-to-date when published. Any eventually existing misprints and mistakes cannot be excluded however. We are thankful for any suggestion for improvement and indication of mistakes.

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# Table of contents

<b>1</b>	<b>Introduction .....</b>	<b>1</b>
1.1	Safety symbols .....	1
1.2	Safety instructions .....	1
<b>2</b>	<b>Types.....</b>	<b>2</b>
<b>3</b>	<b>Product description .....</b>	<b>3</b>
3.1	Technical data .....	3
3.2	Dimension drawings.....	5
3.3	Power supply and control connectors.....	7
3.3.1	Power supply and control connectors - iSR10.....	7
3.3.2	Power supply and control connectors - iSR10.....	8
3.3.3	Power supply and control connectors – iSR20 .....	9
<b>4</b>	<b>Interfaces.....</b>	<b>10</b>
4.1.1	PC interfaces iSR10.....	10
4.1.2	Schnittstellen - iSR11 .....	11
4.1.3	PC interfaces iSR20.....	14
<b>5</b>	<b>Mounting.....</b>	<b>15</b>
<b>6</b>	<b>Switch on the control PC .....</b>	<b>15</b>
<b>7</b>	<b>Maintenance and Cleaning.....</b>	<b>16</b>
<b>8</b>	<b>EC Declaration of Conformity .....</b>	<b>17</b>
<b>9</b>	<b>Bibliography .....</b>	<b>18</b>

# 1 Introduction

## 1.1 Safety symbols



### ***Attention***

This symbol signalizes that there is danger for peoples life und health.



### ***Danger***

This symbol signalizes that there is danger for material, machine and environment.



### ***Information***

This symbol signalizes important information.

## 1.2 Safety instructions



- The Control PC series iSRxx are designed to current technical and recognized rules.
- The device may only be used if it is in correct condition. Any faults have to be eliminated immediately. Neither children nor non-authorized persons are allowed to put the device into operation.
- The device may only be used for the intended use.
- All work on the module must be executed from authorized personal regarding electrical industry rules and accident prevention regulations.
- Assembly and use of operating material has to be according to the standards of conformity declaration. In case of in proper use even the observation the respective rules and standards does not protect against physical damages and damage to property.
- Do not expose the device to high humidity or high vibrations.
- Please take care of the instruction manual. Be sure that all users know the instructions.
- Ignoring the instruction manual can lead to damage, heavy physical damage or to death.

## 2 Types

The CAN-PC's iSR 10/11 are PC-based control computers on a favorable price-performance-ratio. The housings are optimized for control box installation.

They vary in different configuration features:

Typ	Form-Faktor	CAN-Interface
<b>iSR10</b> Part.-No.: 371060	<i>MiniITX</i>	1 x PCI CAN Interface – 1 x RJ45 CAN Out
<b>iSR11</b> Part.-No.: 371062	MiniITX	1 x PCI CAN Interface – 1 x RJ45 CAN Out 1 x CAN IO (16x In, 8xOut, 1x Analog Out)
<b>iSR20</b> Part.-No.: 371057	$\mu$ ATX	1 x PCI CAN Interface – 1x RJ45 CAN Out <i>option:</i> <i>2 x RJ45 CAN Out, 2 Kanal CAN Out Interface</i>

### 3 Product description

#### 3.1 Technical data

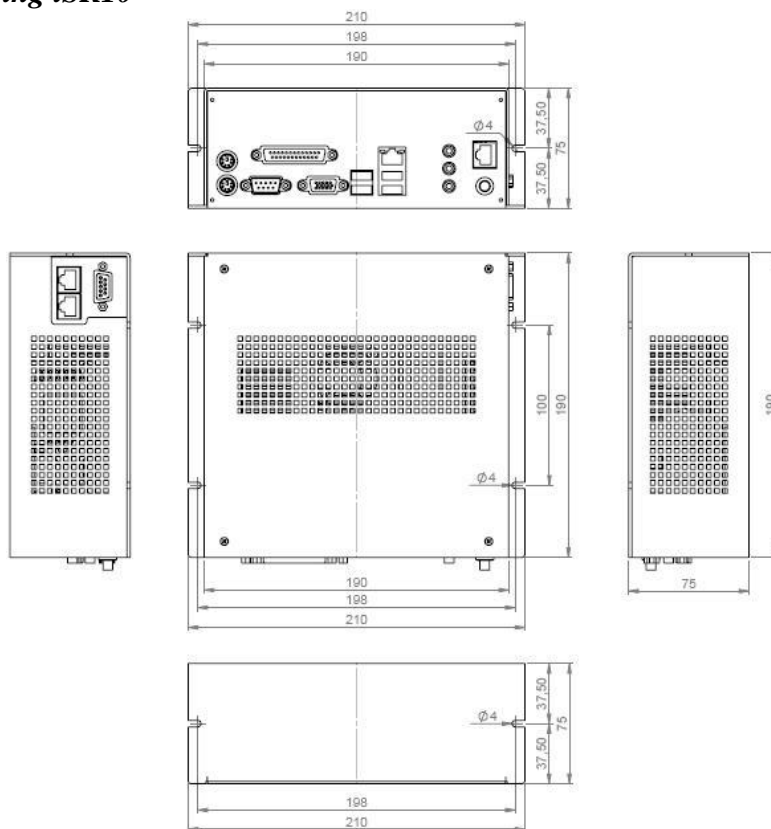


	<b>iSR10</b>	<b>iSR11</b>	<b>iSR20</b>
<b>dimensions (L x H x W):</b>	210 x 75 x 200 mm	210 x 75 x 200 mm	280 x 70 x 180 mm
<b>weight:</b>	1,2 kg	1,4 kg	2,6 kg
<b>admissible ambient:</b>	0°C bis 55°C		
<b>humidity:</b>	max. 90% non condensable		
<b>safety class:</b>	IP20		
<b>power supply voltage:</b>	12 V DC	12 V DC	AC 115/230 V 60/50Hz
<b>use:</b>	desk controller / control box mounting	desk controller / control box mounting	control box mounting
<b>form-factor:</b>	Mini-ITX	Mini-ITX	µATX
<b>CPU:</b>	Intel® ATOM 230, 1,6 GHz	Intel® ATOM 230, 1,6 GHz	Intel® ATOM 230, 1,6 GHz
<b>RAM:</b>	1 x DDR2-RAM socket DDR2-RAM ≥ 1 GB	1 x DDR2-RAM socket DDR2-RAM ≥ 1 GB	1 x DDR2-RAM socket DDR2-RAM ≥ 512 MB
<b>expansion slots:</b>	1 x PCI	1 x PCI	1x PCI
<b>HDD:</b>	2,5" HDD ≥ 160GB,SATA	2,5" HDD ≥ 160GB,SATA	2,5" HDD ≥ 160GB,SATA
<b>power supply unit:</b>	external power supply, DC-DC - 12V/ min. 80W	external power supply, DC-DC - 12V/ min. 80W	PC power supply unit max. 180 Watt
<b>operating system(optional):</b>	Windows® Embedded POSReady 2009	Windows® Embedded POSReady 2009	Windows® Embedded POSReady 2009

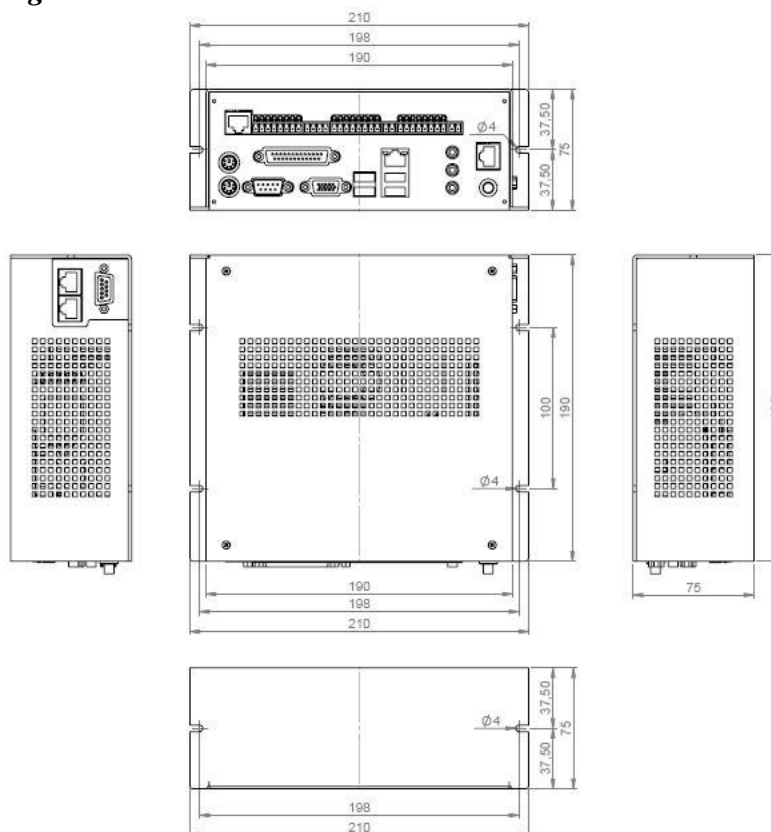
connectors:	iSR10	iSR11	iSR20
<i>case front:</i>	1 x VGA (On Board) 2 x PS2 (mouse, keyboard) 4 x USB 2.0 1 x LAN 10/100MBit 1 x COM , RS232 1 x RCA, Audio 1 x LPT (parallel-port)	1 x VGA (On Board) 2 x PS2 (mouse, keyboard) 4 x USB 2.0 1 x LAN 10/100MBit 1 x COM , RS232 1 x RCA, Audio 1 x LPT (parallel-port)	1 x VGA (On Board) 2 x PS2 (mouse, keyboard) 4 x USB 2.0 1 x LAN 10/100MBit 1 x COM , RS232 1 x RCA, Audio 1 x LPT (parallel-port)
<i>power supply connector:</i>	1 x 9-pin Sub-D connector for PC power supply and external PC-start switch	1 x 9-pin Sub-D connector for PC power supply, CAN-IO power supply and external PC-start switch  CAN-I/O board with 16 x digital inputs 8 x digital outputs 1 x 8-bit analog output	230/115V AC main power supply connector  1 x socket 8-pin for external PC-Start switch, HDD-LED, PWR-LED, power supply TFT
<i>CAN interface cards:</i>			
<i>front side:</i>	1 x CAN PCI interface, RJ45 - CAN Out, 1-channel	1 x CAN PCI interface, RJ45 - CAN Out, 1-channel	1 x CAN PCI interface, RJ45 - CAN Out, 1(2)-channel
<i>bottom side:</i>	1 x RJ45 CAN-Out, 1- channel  1 x RJ45 CAN-In 1- channel (connector not used)	1 x RJ45 CAN-Out 1- channel  1 x RJ45 CAN-In 1- channel for CAN-IO module	

## 3.2 Dimension drawings

### *dimension drawing iSR10*

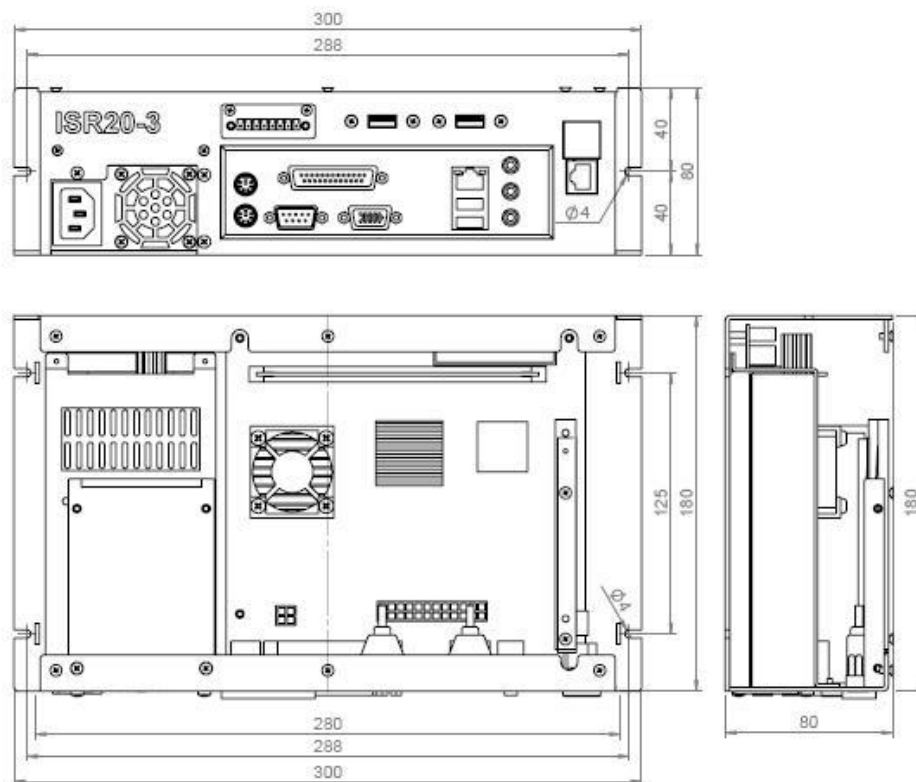


### *dimension drawing iSR11*



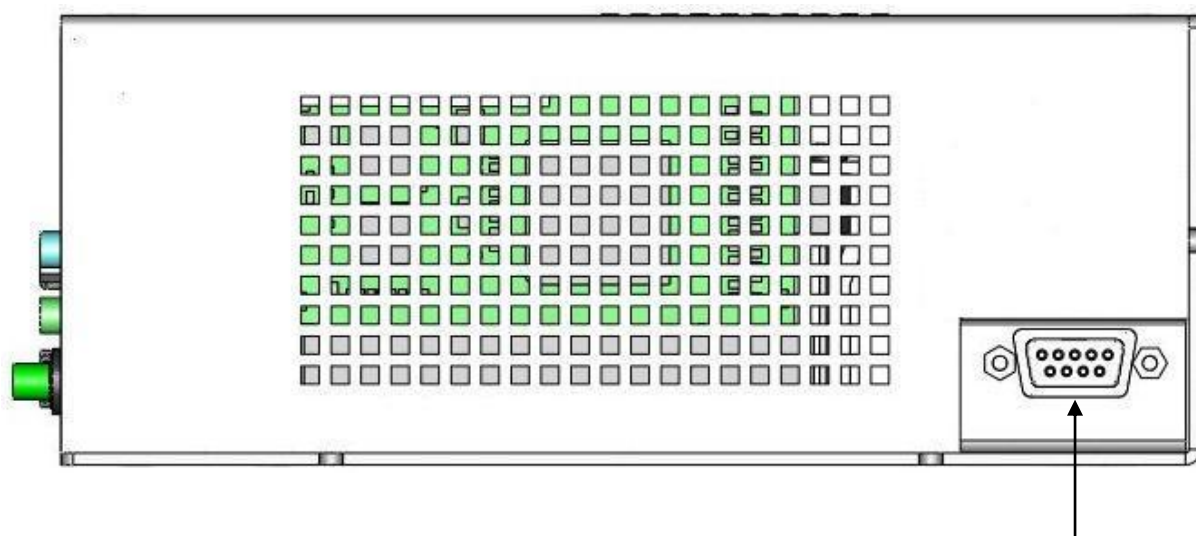


*dimension drawing iSR20*



### 3.3 Power supply and control connectors

#### 3.3.1 Power supply and control connectors - iSR10



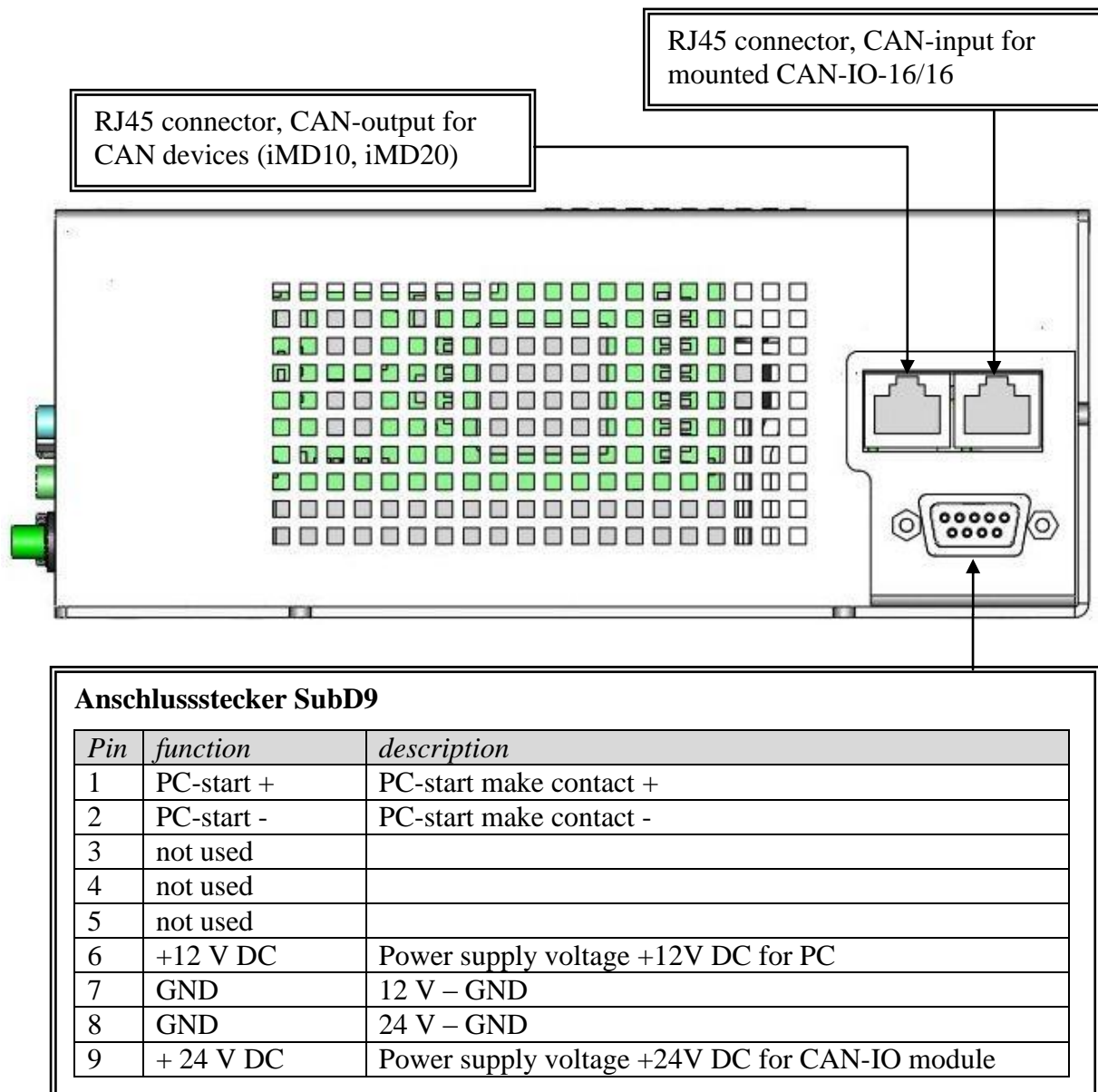
#### 9-Pin Sub-D connector

Pin	function	description
1	PC-start +	PC-start make contact +
2	PC-start -	PC-start make contact -
3	not used	
4	not used	
5	not used	
6	+12 V DC	Power supply voltage +12V DC for PC
7	GND	12 V – GND
8	not used	
9	not used	

**info**

*The pins 1 and 2 will be used if the iSR is mounted in a control box or a machine. In this case you cannot use the PC start button on the front side of the case. Please connect functionally the same button with a make contact to the pins.*

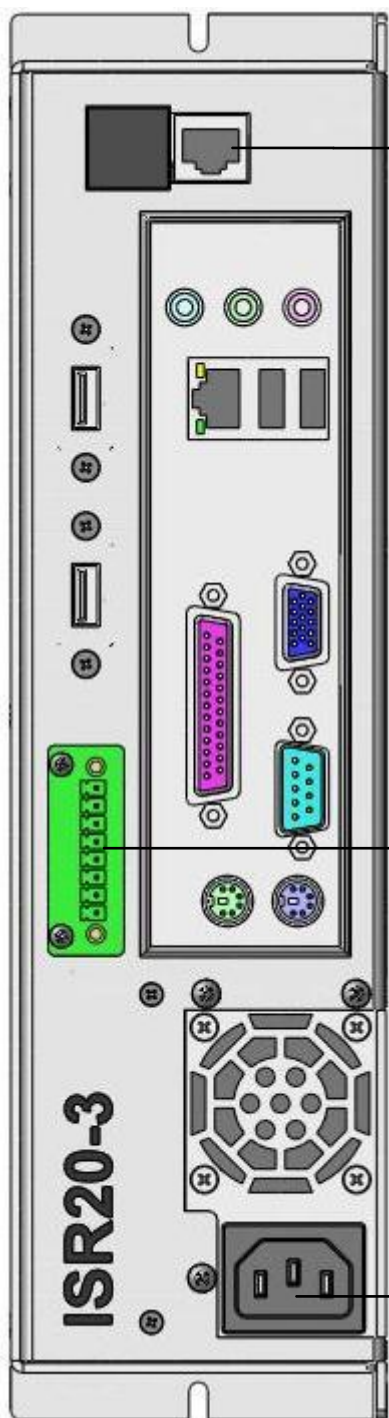
## 3.3.2 Power supply and control connectors - iSR10



### info

*The pins 1 and 2 will be used if the iSR is mounted in a control box or a machine. In this case you cannot use the PC start button on the front side of the case. Please connect functionally the same button with a make contact to the pins.*

### 3.3.3 Power supply and control connectors – iSR20



CAN PCI – interface card, 1 x RJ45 CAN-Out line

optional:

CAN PCI – interface card, 2 x RJ45 CAN-Out lines

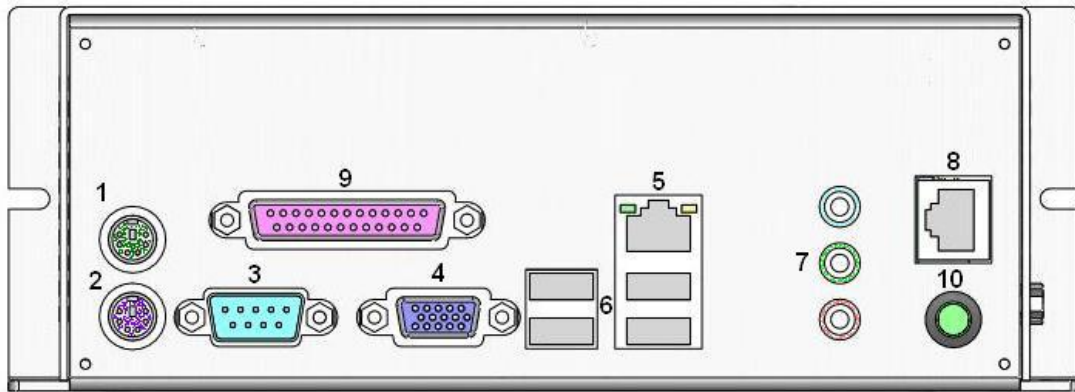
#### Phoenix contact 8-pin Socket

Pin	Function	Description
1	PWR BTN +	Connector for Power button +
2	PWR BTN GND	Connector for Power button GND
3	PWR LED GND	Connector for PWR status LED GND
4	PWR LED +5VDC	Connector for RUN status LED +
5	HDD LED GND	Connector for HDD activity LED GND
6	HDD LED +5VDC	Connector for HDD activity LED +
7	+12VDC	Power supply for LCD monitor +12V
8	GND	Power supply for LCD monitor GND

main power supply line 115/230V AC, 60/50 Hz

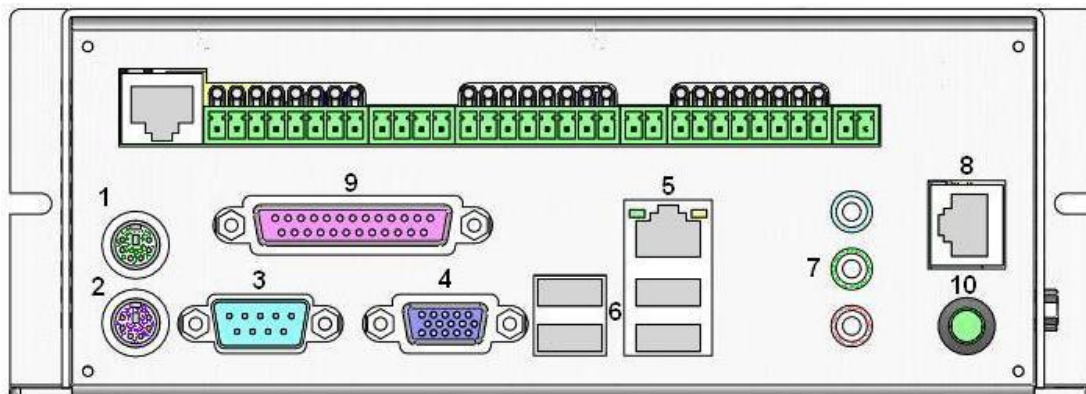
## 4 Interfaces

### 4.1.1 PC interfaces iSR10



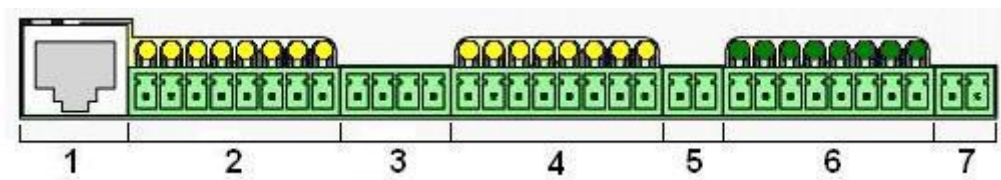
Nr.	Schnittstelle
1	<b>PS/2 Mouse</b> Connector for PS/2 Mouse
2	<b>PS/2 keyboard</b> Connector for PS/2 keyboard
3	<b>Serial Interface COM1</b> Connector for a serial interface, type RS232
4	<b>VGA</b> Connector 15-pin VGA monitor
5	<b>LAN</b> 2x RJ45 connector for network
6	<b>USB-Slots</b> 4 x USB 2.0 Interface slots to connect peripheral USB devices
7	<b>Sound-On-Board</b> Line In, Line Out and Micro Input
8	<b>isel-CAN-Interface</b> Integrated CAN-PCI interface card with RJ45 CAN Out connector to communicate with isel CAN-bus components (e.g. IMDxx, CAN-IO-xx/xx)  <div style="display: flex; align-items: center;"> <div style="background-color: orange; color: white; padding: 5px; font-weight: bold; font-size: 1.2em; margin-right: 10px;">info</div> <div>             The ProNC/Remote installation CD contains the hardware driver for the CAN-PCI card. Normally the drivers will be installed during the initial operation of the control PC.           </div> </div>
9	<b>LPT connector</b> SubD25-pin socket printer port
10	<b>PC-Start button</b> Switch on iSR10, green lighting of the button signalizes “computer is on“

### 4.1.2 Schnittstellen - iSR11



Nr.	Schnittstelle
1	<b>PS/2 Mouse</b> Connector for PS/2 Mouse
2	<b>PS/2 keyboard</b> Connector for PS/2 keyboard
3	<b>Serial Interface COM1</b> Connector for a serial interface, type RS232
4	<b>VGA</b> Connector 15-pin VGA monitor
5	<b>LAN</b> 2x RJ45 connector for network
6	<b>USB-Slots</b> 4 x USB 2.0 Interface slots to connect peripheral USB devices
7	<b>Sound-On-Board</b> Line In, Line Out and Micro Input
8	<b>isel-CAN-Interface</b> Integrated CAN-PCI interface card with RJ45 CAN Out connector to communicate with isel CAN-bus components (e.g. IMDxx, CAN-IO-xx/xx)  <div style="display: flex; align-items: center;"> <div style="background-color: orange; color: white; padding: 5px; font-weight: bold; font-size: 1.2em; margin-right: 10px;">info</div> <div>             The ProNC/Remote installation CD contains the hardware driver for the CAN-PCI card. Normally the drivers will be installed during the initial operation of the control PC.           </div> </div>
9	<b>LPT connector</b> SubD25-pin socket printer port
10	<b>PC-Start button</b> Switch on iSR10, green lighting of the button signalizes “computer is on“

## CAN-IO-module



No.	description	No.	description
1	CAN-Out RJ45 – connector for additional <b>isel</b> CAN bus components	5	GND  pin (left to right) 1 GND 2 GND
2	digital input port 1  pin (left to right) 1 In1 2 In2 3 In3 4 In4 5 In5 6 In6 7 In7 (für Start-Taste) 8 In8 (für Stop-Taste)	6	digital output port  Pin (left to right) 1 Out1 2 Out2 3 Out3 4 Out4 5 Out5 6 Out6 (Spindel Start) 7 Out7 (Lampe Start) 8 Out8 (Lampe Stop)
3	+24VDC  pin (left to right) 1 +24V 2 +24V 3 +24V 4 +24V	7	analog output 8-Bit  pin (left to right) 1 +Analog 2 GND
4	digital input port 2  pin (left to right) 1 In9 2 In10 3 In11 4 In12 5 In13 6 In14 7 In15 8 In16		

## Digital input wiring

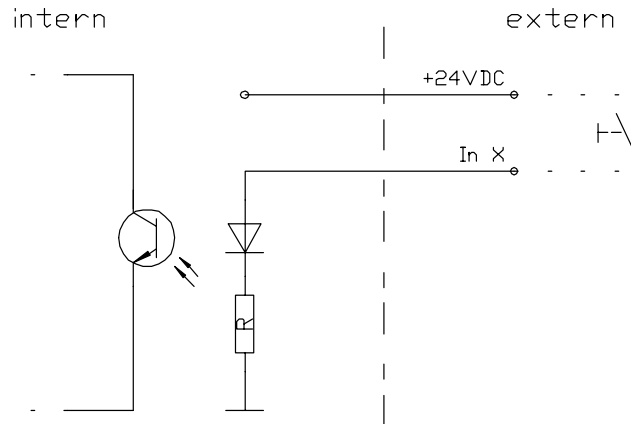
The binary user inputs are realized using 24V-DC process voltage.



*Do not short 24V DC reference potential of the PC with GND or case ground.*

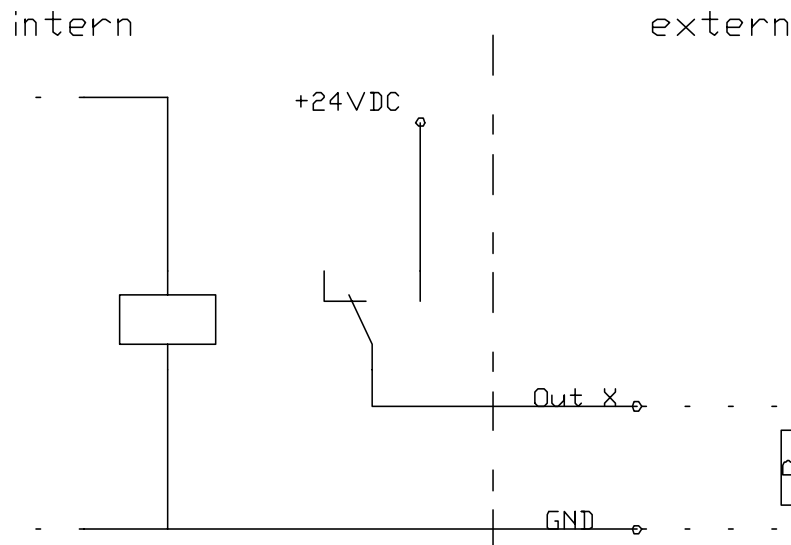
The binary user inputs must be wired as shown opposite.  
(InX means Input 1 to 8).

The current load amounts 8mA per Input.



## Digital output wiring

The binary user inputs are realized using 24V-DC process voltage. Integrate outputs in your application as follows:



The maximum load of the relay outputs is 5A.

## Analog output wiring

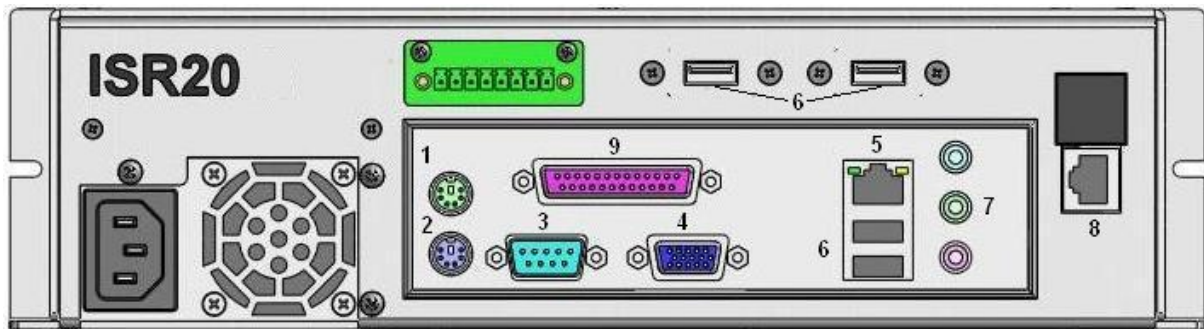
Use this 0 ... 10V output to drive a frequency inverter for a working spindle.



**Maximum current load is about 15mA!**



## 4.1.3 PC interfaces iSR20



No.	Interface
1	<b>PS/2 Mouse</b> Connector for PS/2 Mouse
2	<b>PS/2 keyboard</b> Connector for PS/2 keyboard
3	<b>Serial Interface COM1</b> Connector for a serial interface, type RS232
4	<b>VGA</b> Connector 15-pin VGA monitor
5	<b>LAN</b> 2x RJ45 connector for network
6	<b>USB-Slots</b> 4 x USB 2.0 Interface slots to connect peripheral USB devices
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9	<b>LPT connetcor</b> SubD25-pin socket printer port

## 5 Mounting

Please use the mounting holes on the iSRxx cover plates and fixate it on the control box base plate.



Pay attention that there is enough free zone on the louvers for air circulation. Ignoring this fact causes overheating and potential defect of the iSRxx.



Please avoid extreme environment conditions. Protect the control PC for dust, humidity and heat. Do not cover the louvers!!

## 6 Switch on the control PC

Depending on type power up of the control PCs is realized over the 8-pin connector (iSR20), the integrated PC-start button on case front side or the 9-pin Sub-D connector on the case bottom side.

If the operating system is installed you can switch on the iSR and run the operating system. If not you have to buy an operating system license and install the operating system yourself.

### *Switch on iSR10, iSR11*

Press the green button on the front side of the case shortly to switch on iSR10 / iSR11. If the computer runs the button is green lighted (chapter **Fehler! Verweisquelle konnte nicht gefunden werden.** and 4.1.2).

In case of mounting the iSR10 / iSR11 into a control box or a machine you have to connect an external PC-start button (make contact) as described in chapters 3.3.1 and **Fehler! Verweisquelle konnte nicht gefunden werden..**

**Verweisquelle konnte nicht gefunden werden..**



*If the iSR cannot be switched on please check the power supply lines and power supply units.*

*Therefore have a look at chapters 3.3.1 and **Fehler! Verweisquelle konnte nicht gefunden werden..***

### *Switch on iSR20 via 8-pin connector*

Connect a button (make contact) to the pins 1 and 2. Furthermore you can connect your own LEDs (+5VDC) to show run status and HDD activity. Pay attention to the pin allocation.



*Pay attention to the pin allocation described in chapter **Fehler! Verweisquelle konnte nicht gefunden werden..***

### *Using the iSR20 with a isel Control-Panel*

To use the iSR20 with an isel CNC-Control Panel connect the 8-pin plug of the Control-Panel with the 8-pin Socket of the iSR20 (see also /1/ CNC-control panel - user manual). This connection is necessary for the Power-button, the status LEDs and the power supply of the TFT. To switch the iSR20 on/off use the button on the right side of the control panels case.

The power LED (green) on the front side of the control panel should be on if the iSR20 is running.

## 7 Maintenance and Cleaning

### Maintenance

The control computers iSRxx series are maintenance free.

### Cleaning



Switch off the connected computer and remove the power supply.



Use a wet, soft cloth to clean the display. Don't use cleaning agents or abrasives. This causes scratches on the LCD monitor.  
Be sure that no dampness comes into the case.

## 8 EC Declaration of Conformity

### EC - Declaration of Conformity



Der Hersteller

*The manufacturer*

**isel Germany AG**  
**Bürgermeister-Ebert-Str. 40**  
**D-36124 Eichenzell**

erklärt hiermit, dass folgendes Produkt

*hereby declares that the following product*

**Geräteart:** **Steuerrechner iSR**  
*Device:* control PC iSR  
**Typ:** **iSR10, iSR11, iSR20**  
*Type:*  
**Art.-Nr.:** **iSR10:** 371060  
**iSR11:** 371062  
**iSR20:** 371057

*Product - No.:*

mit den Vorschriften folgender Europäischer Richtlinien übereinstimmt:

*complies with the requirements of the European Directives:*

EG-Richtlinie 2004/108/EG  
*EC-Directive 2004/108/EC*

EMV Richtlinie  
*EMC directive*

EG-Richtlinie 73/23/EWG  
*EC-Directive 73/23/ECC*

Niederspannungsrichtlinie  
*low voltage directive*

Folgende harmonisierte Normen wurden angewandt:

*Following harmonized standards have been applied:*

EN 61000-6-2:2005	EMV - Fachgrundnorm - Störfestigkeit für Industriebereich <i>EMC - Generic standards - Immunity for industrial environments</i>
EN 61000-4-2:2007	EMV - Prüf- und Messverfahren - Prüfung der Störfestigkeit gegen Entladung statischer Elektrizität (ESD) <i>EMC - Testing and measurement techniques; Electrostatic discharge immunity test</i>
EN 61000-4-4:2004	EMV - Prüf- und Messverfahren - Prüfung der Störfestigkeit gegen schnelle transiente elektrische Störgrößen (Burst) <i>EMC - Testing and measurement techniques - Electrical fast transient/burst immunity test</i>
EN 61000-4-5:2006	EMV - Prüf- und Messverfahren - Prüfung der Störfestigkeit gegen energiereiche Impulse (Surge) <i>EMC - Testing and measurement techniques - Surge immunity test</i>
EN 61000-4-11:2004	EMV - Prüf- und Messverfahren - Prüfung der Störfestigkeit gegen Spannungseinbrüche / Spannungsunterbrechungen <i>EMC - Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests</i>
EN 61000-6-4:2007	EMV - Fachgrundnorm - Störaussendung Industriebereich <i>EMC - Generic standards - Emission standard for industrial environments</i>
DIN EN 55011:2007	Industrielle, wissenschaftliche und medizinische Hochfrequenzgeräte (ISM-Geräte) - Funkstörungen - Grenzwerte und Messverfahren Industrial scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement

Dermbach, 13.01.2009

Hugo Isert, Vorstandsvorsitzender / chairman

## 9 Bibliography

/1/ CNC-Control panel – user manual, status 09/2009

User manuals and operating instructions for download you can find on:

[www.isel-data.de/manuals](http://www.isel-data.de/manuals)